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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,927	07/31/2003	Shinichi Hara	1232-5091	9675
27123	7590	07/06/2006	EXAMINER	
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			ALI, MOHAMMAD M	
			ART UNIT	PAPER NUMBER
			3744	

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/631,927

Applicant(s)

HARA, SHINICHI

Examiner

Mohammad M. Ali

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 36-37, 39-40 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,000,227 to Kroeker, in view of U.S. Patent 5,813,233 to Okuda et al. and U.S. Patent 6,298,669 to Maruyama et al. Kroeker discloses applicant's basic inventive concept, a cooling system provided in a vacuum atmosphere (abstract), comprising a radiational member (142, FIG. 7) spaced apart (col 2, lines 45-47) from a rear surface of a cooled optical element (162, FIG. 7), substantially as claimed with the exception of a Peltier element contacting said radiational member with a heat absorbing surface (1b, FIG. 9 of Okuda et al), a detector for detecting temperature of the optical element (52-55, FIG. 27 of Okuda et al) as input to a controller (FIG. 28 of Okuda et al) for controlling the constant, reference temperature (col 17, lines 40-62 of Okuda et al) of the optical element at a predetermined, target value (col 18, lines

1-15 of Okuda et al), a heat transfer system contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel', a radiator block (3, FIG. 9 of Okuda et al) contained in the coolant channel and a shielding element (16, FIG. 9 of Okuda et al) for protection. Mamyama shows the use of a Peltier element (71, FIG. 7A) contacting a radiational member (72, FIG. 7A) with a heat absorbing surface and a heat transfer system (73, FIG. 7A) contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel (75, FIG. 7A) to be old in the thermoelectric refrigeration art. Okuda shows the use of a detector for detecting temperature of the optical element (52-55, FIG. 27) as input to a controller (FIG. 28) for controlling the constant, reference temperature (col 17, lines 40-62) of the optical element at a predetermined, target value (col 18, lines 1-15) and a shielding element (16, FIG. 9) for protection to be old in the thermoelectric cooling art. Therefore, it would have been obvious to one having ordinary skill in the art. at the time the invention was made from the teaching of Maruyama and Okuda to modify the system of Kroeker, by coupling a Peltier element to the radiational member and adding heat transfer system contacted to a heat radiation surface of said Peltier element to flow a coolant via a circulation channel enabling the radiation member temperature-controlled to a target temperature by operation control (Maruyama; col 1, lines 60-65), and by using a detector, a controller and a shielding element for protection in order to update the controlling system and protect the cooled object. Regarding the disclosure, 'the temperature of the coolant is substantially the same as a temperature of the optical element' for the amendment portion of independent claim 21 is a functional recitation of the controller of Okuda et al., as disclosed in Fig. 27-29. The controller can attain any desired coolant temperature. The different cooling ranges chosen in claims 33-35 are also obvious choice of the individual skilled

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in the art since there is no criticality or unexpected result from it as the controller is able to attain any desired temperature range of the cooling fluid.

Claims 38 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,000,227 to Kroeker, in view of U.S. Patent 5,813,233 to Okuda et al. and U.S. Patent 6,298,669 to Maruyama et al., as applied to claim 21 above, and further in view of U.S. Patent 6,098,408 to Levinson et al. Kroeker in view of Okuda and Maruyama discloses applicant's basic inventive concept, a radiation cooling system spaced apart from the cooled optical element, substantially as claimed with the exception of stating that the optical element cooled is a mirror having a light which passes through at a wavelength of 10-15 nm, said mirror being either a projection or illumination optical system and that the optical system is used for exposing an object to a pattern. Levinson shows a radially cooled mirror (col 1, line 55) having a light passing through it at a wavelength of 5-70 nm and used for exposing an object to a pattern (col 1, lines 20-22) to be old in the cooling art. Also, a mirror is an integral part of any projection or illumination optical system and this limitation bears no patentable weight on the specific cooling feature, which is claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made from the teaching of Levinson to modify the system of Kroeker in view of Okuda and Maruyama, by specifying the mirror, said mirror being either a projection or illumination optical system, as a cooled element in order to lessen the error in Optical temperature sensing.

Response to Arguments

Applicant's arguments filed 3/29/06 have been fully considered but they are not persuasive. The Applicant argued, "There is no discussion of the temperature of the coolant in Krocker." This is not the aim of the claimed invention that the temperature of the coolant should be equal to the temperature of the optical element. Rather it would be the aim of the cooling device to bring down the temperature of the hot optical element to the temperature of the coolant temperature. The main object of a coolant is to cool down temperature of an object to be cooled. For example if an object is a very high temperature needs to cool down to a desired temperature by use of some coolant. It is not wise or possible to find a coolant at the same high temperature of the object to be cooled. In such case the object would not be cooled rather it will remain at the same temperature because of the same high temperature of the coolant. Therefore, the accepted principle should be bringing down the temperature of the object to the temperature of the coolant. And it is obvious that if a hotter body is subjected to a continuous supply of a coolant at a lower temperature than the hotter body, at a certain time the temperature of body will come down to the coolant temperature. At this time it can be stated that the temperature of the coolant is substantially the same as the temperature of the body. For this reason Examiner has already stated in the above rejection that the disclosure, "temperature of the coolant is substantially the same as a temperature of the optical element" for independent claim 21 is a functional recitation of the controller of Okuda et al., as disclosed in Fig. 27-29. The controller can attain any desired coolant temperature.


The Applicant further argued, "Okuda is directed to a thermoelectric cooling device. Fig. 27, cited by the office action, shows a constructional view of a thermoelectric cooling for a liquid crystal projector. The text associated with that embodiment is silent as to the use of any coolant."

The Examiner disagrees. In Fig. 22 the heat absorbing fin unit 33 is fed by air drawn by a fan 34 and the cold air 38 is delivered to the cooling duct 35 where the liquid crystal panel 41 is cooled by the cold air 38 as a coolant. In Fig. 27 same cold air 38 is disclosed to cool the liquid crystal panel 41. Therefore, the rejections are proper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad M. Ali whose telephone number is (571) 272-4806. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


MOHAMMAD M. ALI
PRIMARY EXAMINER

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